

LOS ALAMOS NATIONAL LABORATORY
ENVIROMENT, SAFETY & HEALTH DIVISION
REVIEW COMMITTEE REPORT

Meeting Held: April 5-7,1999

Report Issued: May 10,1999

ESH DIVISION REVIEW COMMITTEE

Members in Attendance:

Professor Dean B. Baker	Univ. of California-Irvine
Professor Ron K. Bhada	New Mexico State Univ.
Mr. Ian F. Devereux	Atomic Weapons Establishment
Dr. Daniel Kerlinsky	Univ. of New Mexico
Dr. Frederick M. Toca	Atlantic Environmental, Inc.
Dr. James Johnson*	Howard University
Dr. Robert L. Long**	Nuclear Stewardship, LLC

Members Unable to Attend:

Professor John W. Poston, Sr.	Texas A&M University
Mr. Roger Strelow***	Dames and Moore

* Departed at end-of-day, April 6, 1999

** Committee Chair

*** Liaison between UC ESH Panel and DRC (Represented by Ken Groves on April 5-6, 1999)

TABLE OF CONTENTS

<u>Section</u>	<u>Page Number</u>
INTRODUCTION.....	4
SCIENCE AND TECHNOLOGY EVALUATION.....	4
Evaluation Basis and Criteria.....	4

Overall Grade.....	5
Quality of Science and Technology.....	5
Relevance to National Needs and Agency Missions.....	6
Support of ES&H Performance at LANL Facilities.....	6
Programmatic Performance and Planning.....	7
OUTSTANDING PROJECTS.....	7
SCIENCE AND TECHNOLOGY STRATEGIC PLAN.....	10
STRATEGIC ALIGNMENT.....	13
INTEGRATED SAFETY MANAGEMENT.....	13
APPENDIX F.....	14
ENVIRONMENTAL ISSUES.....	15
Laboratory Level Oversight.....	15
Assurance of Regulatory Compliance.....	15
Beyond Compliance.....	15
Concerns.....	16
SWEIS Yearbook.....	16
Compliance Initiatives.....	16
STAKEHOLDER PERCEPTIONS.....	17

INTRODUCTION

The Environment, Safety and Health (ESH) Division Review Committee (DRC) met at Los Alamos National Laboratory on April 5-7, 1999. The primary purpose of the Meeting was to perform the Science & Technology (S&T) Assessment of the ESH Division. In addition, the DRC received and evaluated presentations on ESH Division and LANL ES&H activities.

This report begins with presentation of the results of the S&T Assessment. Subsequent sections present comments on the ESH S&T Strategic Plan, the need for LANL strategic plan alignment, and comments on topics presented at the Meeting, including Integrated Safety Management, Appendix F, and a variety of environmental related programs. The final section presents comments regarding stakeholder perceptions.

As in the past, the Report identifies areas and activities which the DRC believes can become even more effective. Key recommendations throughout the Report have been highlighted in *italics*.

SCIENCE AND TECHNOLOGY EVALUATION

Evaluation Basis and Criteria

This Science and Technology Assessment of the ESH Division is based on (1) review of the ESH Division 1999 Science, Technology and Technical Support Self-Assessment, (2) visits with the Group Leaders of the Division programs for radiation protection, occupational health and safety, environmental, and operational assurance, (3) review and discussion with authors of 31 projects presented in a Poster Session, (4) review and discussion with authors of peer reviewed papers published in 1998, and (5) review and discussion of presentations made by ESH staff on April 5-6, 1999.

The DRC based our evaluation on the four criteria provided by the UC President's Council on the National Laboratories, i.e.

- Quality of science and technology
- Relevance to national needs and agency missions
- Support of ES&H performance at LANL facilities
- Programmatic performance and planning

Note that the third criterion is changed from "Performance in the technical development and operation of major research facilities" to "Support of ES&H performance at LANL facilities." The ESH Division's role, in conjunction with the line organizations, is to ensure at all LANL facilities that all employees are provided a safe and healthy work environment and that the laboratory complies with all ES&H standards and requirements. Thus, we have based this third criterion for assessment of science and technology activities of ESH on the Division's ability to support, through applications of science and technology, ES&H performance at all LANL facilities.

Overall Grade

The DRC assigned an overall grade of Excellent to the performance of the Division in Science & Technology. Since the 1998 grade was Outstanding/Excellent, an explanation is in order. First, we have conformed to the use of four grades adopted by the UC Science & Technology Panel, i.e. no use of the intermediate grades, e.g. O/E. Second, with the continuing improvement of ESH in the S&T area, the DRC has increased its expectations and believes, while the S&T work is research of very high merit, overall it is not yet at the level of exceptional performance which demonstrates "best in class." The development of an "ESH Division Science and Technology Development Plan" supports the continuing improvement of the Division S&T.

Summarizing, the DRC emphasizes our belief that the Division S&T is as good or better than in 1998, but the grade of Excellent reflects our use of the UC Science & Technology Panel 4-level performance rating scale, and our increased expectations for the Division's S&T programs.

The overall grade is a composite of the grades the DRC assigned to the four broad criteria discussed above. Our findings for each criterion follow, together with justifications for the ratings assigned.

Quality of Science and Technology

The DRC assigned a grade of Excellent to the criterion of "quality of science and technology". The ESH Division science and technology projects are invariably focused upon applied problem solving. Both the nature of the Division's mission and the limit on resources for research make this focus necessary. *DRC recommends that research avenues be broadened by making funding and time available for ES&H research into more basic research in health and safety. One example would be correlating industrial hygiene, medical and epidemiological data on LANL employees who have had exposures which are unique to DOE research facilities.* We emphasize that the efforts in applied research should also continue because this further enables the overall mission of LANL and supports the other Divisions in their individual missions.

DRC observed that the range of quality in science and technology of the projects that were reviewed was quite broad. Some of these projects were excellent to outstanding because they added to the overall scientific data base and knowledge in the area. Other projects provide support to ongoing operations and are useful, but could not be considered as new additions to science and/or technology. In the judgment of DRC two-thirds of the projects fit into the first category of excellent to outstanding. This type of research and technology needs to be better supported by LANL. DRC believes that by supporting and encouraging this type of research LANL will benefit as a whole. Science and technology in the ESH Division should be on a par with other research conducted at LANL.

While DRC considers the present level of ESH Division research at LANL to be excellent, we believe that there continue to be a number of opportunities for improvement.

Relevance to National Needs and Agency Missions

The DRC assigned a grade of Outstanding/Excellent to the criterion of "relevance to national needs and agency missions.". The Integrated Safety Management (ISM) for LANL states "Safety is First" and commits to achieving excellence in environmental, safety and health performance. All activities of the ESH Division should be in direct alignment with the ISM. In reality, the ESH Division should be the driver for LANL in these performance areas.

Currently the S&T activities of the ESH Division have resulted in enhanced worker safety and in some cases substantial cost savings. ES&H also plays the role of an environmental, safety and health "look out group." In particular, science and technology research activities have been initiated in anticipation of regulatory changes and new activities at the Laboratory. Examples of the latter role include research on the health hazards associated with the new beryllium facility and decontamination and decommissioning of Laboratory facilities.

ESH seeks to be the "Best-in-Class" in selected areas of science and technology consistent with its operational activities. The DRC believes this approach is appropriate and considers many of the on-going projects appropriate for research and development for ESH. *The DRC, however, cautions the Division to select a few areas to build its science and technology competencies.* Currently as many as seven areas have been identified (health physics, occupational medicine, industrial hygiene and safety, safety and radiation protection, criticality safety, risk management, air and water, and ecology) To build the necessary scientific critical mass to be "Best-in-Class" in all these areas may be very costly and not necessary, given the expertise in other LANL Divisions and at other DOE laboratories.

Support of ES&H Performance at LANL Facilities

The DRC has assigned a grade of Outstanding/Excellent to the criterion of "support of ES&H performance at LANL facilities". The personnel of the ESH Division are in a unique position to be able to understand the support needed in the ES&H area by operations and facilities. Thus, Division personnel carefully choose science and technology related projects that serve the Laboratory's operation and facility needs. For this criterion, of the thirty-one projects that we evaluated we felt that nine were truly outstanding and twelve were in the excellent range. Ten of the projects were rated as good, with none rated below that level. Further, the assessment of the Division's support of the Integrated Safety Management System and LANL environmental issues have convinced us that the Division's S&T activities are vital to ensuring the ES&H of the Laboratory's facilities and operations.

Examples of outstanding projects in this area are:

- Automated chemical inventory tracking system on the Web
- Service life modeling for organic vapor air purifying respiratory cartridges
- Pressure effects and deformation of waste containers
- Monte Carlo Bio-Assay simulations
- Use of absolute humidity and radio chemical analysis of water vapor samples to correct under estimated atmospheric tritium concentrations
- Monte Carlo simulation of analytical uncertainty in radiochemical data sets with trend
- Radionuclides and trace elements in fish collected from canyons
- Resource use, activity patterns and disease analysis of Rocky Mountain elk at Los Alamos
- Hydrogeological characterization of Pajarito Plateau through implementation of hydrogeologic work plan

Programmatic Performance and Planning

The DRC assigned a grade of Excellent/Good to the criterion of "programmatic performance and planning". Indicators of continuing improvement include (1) the Quality Management Group (ESH-14) received a New Mexico Quality Award for their overall operation within a quality plan and (2) Occupational Medicine (ESH-2) has received independent certification of their program.

ESH S&T is conducted within the Division budget, occasionally with LANL or outside agency sponsorship. As previously noted the S&T projects are responsive to technical demands in support of LANL ES&H activities. The Division has become more effective in producing peer reviewed publications and disseminating their scientific and technical developments and results to pueblo and other community stakeholders. The DRC is concerned that some of the ESH S&T developments have not been effectively implemented at LANL, e.g., the ESH developed alpha CAM with "accident filter" has not yet been installed at TA-55.

OUTSTANDING PROJECTS

Five of the projects described in the Poster Session received grades of Outstanding in all four UC criteria. In support of the grades assigned above, these projects are described in this section of our Report.

Service Life Modeling for Organic Vapor Air-Purifying Respirator Cartridges

This project is the continuation of one which was reviewed during last year's S&T evaluation. The technique that ESH developed has been adopted by several respirator manufacturers, in order to comply with the new OSHA respirator standard. This project has also won several awards in recognition of its relevance to the practice of industrial hygiene. Finally, the use of this program to predict service life of respirators has the potential to save LANL money, by reducing the number of unused respirators that are discarded.

Pressure Effects and Deformation of Waste Containers

This project is also an extension of a project which was presented during last year's S&T evaluation. The original project focused on identifying the contents of 55-gallon drums and then safely neutralizing potentially explosive and/or hazardous contents. The extension of the project now includes its use on other containers, which are potentially hazardous or explosive. The project is outstanding in its quality of science and technology, having solved problems that industry has not been able to solve effectively for avoiding accidents due to pressure build-ups in drums. The project has resulted in a clearer understanding of failures in drums of both metal and plastic materials. In addition a new device for venting from drums has been developed, which could have added benefit to industry. It is significant that this technology has been shared with the Chemical Manufacturers Association as well as placed upon the LANL web site so that others can make use of this safety device.

This project has won many awards and has resulted in peer-reviewed papers and publications that have attracted citations from industry and other users. The project is also rated outstanding in its relevance to agency mission since it supports safety very strongly. Further, it is relevant to research facilities and is therefore rated outstanding in its support of facilities of the laboratory. Programmatic performance and planning has been outstanding and the project has resulted in patented devices as well as awards and publication in peer reviewed journals such as the Journal of the American Nuclear Society.

Monte Carlo Bioassay Simulations

This work is a superb example of cross-fertilization between different disciplines, leading to significant advances. The team applied Bayesian methods to the analysis of bioassay results of subjects receiving internal exposures from radionuclides.

The nature and uncertainties of bioassay are such that there is a propensity for a high proportion of false positives. Traditional bioassay processes monitor the consequences of chronic exposure and infrequent excursions, which may be due to abnormal or accident conditions. In the absence of other indicators of such exposure, high bioassay levels result in a worker's recall for additional bioassay, testing and assessment to quantify potential exposure. Such events give rise to additional financial costs in reprocessing and lost time, as well as the human factors of distress and related psychological effects.

The researchers used data on the prior exposure history of the individual, the nature of the work involved, evidence of abnormal occurrences and other factors to modify bioassay results using Bayesian inference. The outcome of the work demonstrated that the occurrence of false positives was reduced by one to two orders of magnitude, without significantly changing the rate of false negatives. The application of this work has profound beneficial consequences to those persons requiring bioassay, and for those responsible for the conduct of health-monitoring programs. This work was rated as outstanding against all four criteria and has the potential for national and international recognition. The major challenge facing such recognition is overcoming the innate conservatism of classical statisticians.

Using Absolute Humidity and Radiochemical Analyses of Water Vapor Samples to Correct Underestimated Atmospheric Tritium Concentrations 99-396

The DRC assessed this project as outstanding in all four criteria. The researcher identified the potential problem through review of the literature. LANL water vapor sampling is done at more than 50 sites by absorbing the water vapor in the sampled air with silica gel and then radiochemically analyzing the water for tritium. A carefully designed research effort showed that, rather than 100 percent absorption of the water vapor, the absorption could be as low as 10 to 20 percent in the middle of summer.

The resulting annual tritium estimates can be low by factors of 2-3. The researcher found that tritium concentration can be recalculated by using historical absolute humidity values and the tritium analyses. The water vapor collection process will also be changed to increase collection efficiency. Results of this project have been presented to the neighboring Pueblos with very positive responses, particularly to LANL's willingness to correct past years' data.

Conduction of Hydrogeologic Characterization of the Pajarito Plateau Through the Implementation of Hydrogeologic Work Plan

This is an outstanding project in all aspects of science and technology. The project is compliance driven by a problem identified almost ten years ago but having been undertaken as a plan, together with the New Mexico Environmental Department, about one year ago. The plan is well developed with modeling and experimentation performed in such a way that experiments are step wise and guided by knowledge as acquired by selected wells placed in the rock formations. The plan is to eventually develop as many as 32 selected deep wells, but with proper scientific work, the number of wells needed may be reduced. Three wells have been completed to date and already significant data has been obtained which has identified nitrates from sewage in the groundwater as well as tritium and high explosives in some of the groundwater. The total hydrologic plan when implemented will have the data collection and modeling so done that it will satisfy the mission in an outstanding manner with collaboration from the New Mexico Environmental Department, the Pueblo's, the Citizen Advisory Board, the County as well as many of the divisions of Los Alamos National Laboratory. It is also outstanding in its support of facilities since it will contribute to the effectiveness of the facilities as well as the effectiveness of communication and information to DOE, NMED and the stakeholder groups. This program in total will do a lot for communication with the various branches of the state government and stakeholder groups, as well as

minimization of problems related to RCRA and the state national quality control regulations.

SCIENCE AND TECHNOLOGY STRATEGIC PLAN

The Committee reviewed the March 1999 draft of the ESH Division S&T Strategic Plan and heard a presentation about the draft plan. Based on this information, it appears that the Division has made substantial progress in developing a strategic plan for science and technology. The fundamental perspective is that the ESH Division must have a viable S&T research program in order to achieve and maintain "best-in-class" status for LANL's ES&H programs.

The S&T program must be consistent with the Division's core mission of Laboratory operational support; it also must be cost-effective and add value to the Laboratory's mission. The DRC agrees with and strongly endorses this perspective of the role of S&T within the ESH Division. In addition to evaluating the draft work plan, the DRC discussed the context of the Division's S&T plan within the overall Laboratory S&T planning process. The Committee presents three recommendations based on this discussion.

First, because the Division's S&T plan should closely relate to the Laboratory's mission, it is relevant to note that several strategies stated in the Laboratory Strategic Plan (1999-2004) are based on ES&H science and technology. These strategies include, for example, the need to maintain safety and reliability of nuclear weapons and related facilities; the development of technologies that will assist in the prevention of physical and cyber-terrorism; and the development of institutional initiatives in the areas of environment, energy security, and bioscience/health security.

The stockpile stewardship and nonproliferation missions of LANL and DOE provide an opportunity for a redefined and expanded role for ESH activities. Weapons component assessments and weapons production activities at Los Alamos should be accompanied and guided by the best technical monitoring for worker safety and environmental protection. ESH is actively involved in improving the instrumentation and modeling of physical, chemical and biological phenomenon. *Because these activities are key to sustaining the stockpile stewardship mission they should be specifically supported.* The nonproliferation mission requires access to and measurements within and around key foreign facilities. Improved continuous air monitors, data collection systems and other ESH contributions can help provide access to foreign facilities to help improve their radiation monitoring, health information and environmental activities.

The ESH Division and several other LANL divisions could make important contributions to ES&H science and technology consistent with the LANL mission. *Therefore, the DRC recommends that LANL develop a Laboratory-wide strategic plan for ES&H science and technology. The Laboratory-wide plan should identify opportunities and priorities for LANL to provide leadership in the development of ES&H science and technology.*

Second, because the Division's mission must derive from the overall Laboratory mission, *there should be more detailed consideration given to the alignment between the Laboratory Strategic Plan and the ESH Division S&T Strategic Plan.* The draft plan mentions the LANL mission and briefly discusses the relevance of ESH S&T to the LANL mission, but this short discussion is not adequate to address this critical issue. It should be

clear in the Division's plan how each strategy and proposed activity within the Division - both S&T and operations support - relate to the Laboratory's mission and strategic plan.

Third, because the roles of S&T and operations support within the Division are difficult to separate, *the Division's S&T strategic plan should be developed and presented as a component of the Division's overall strategic plan.* This integrated planning approach would help Division members, as well as Laboratory management, understand better the relationship between S&T and operations support. This is relevant because a review of the draft plan and self-assessment documents suggests that there is uneven awareness of and attitude toward S&T within the different core groups.

An integrated document could also be used to clarify subtle distinctions between S&T and operations support activities to the extent that such distinctions are needed for planning and resource allocation reasons. For example, the plan cites examples of core group competencies and activities, of which some appear to involve S&T and others appear to be operations support. In fact, many of the "S&T" activities mentioned in the draft plan are cited in other documents as operations support activities. While the dual interpretation of these activities may be natural, it makes it difficult for the Division to identify which activities really are science and technology. It also creates complications regarding the sources used to support the activities (direct versus indirect funds). Because the Division will have to justify its allocation of resources for S&T, it would be appropriate to develop an integrated plan that can present criteria and a management process for distinguishing between "pure" S&T and operations support activities.

Regarding the draft work plan, the DRC notes that substantial progress has been made during the past year, but the document still must be considered a "work in progress." The draft plan presents a brief, but good summary of the current situation and future issues, as well as a summary listing of the Laboratory's and Division's missions. The three strategic goals (S&T to achieve compliance, S&T to achieve excellence beyond compliance, and to emphasize the significance of S&T to the ESH Division mission) are reasonable, but quite general and modest if the overall goal is to achieve and maintain "first-in-class" status as an ES&H organization.

The strategies described under each goal identify processes or resources by which the Division can do operations support and some S&T, but they do not give specific guidance about how the Division will reach its strategic goals. Strategies include, for example, "identify and prioritize...programs," "develop and implement a tactical plan," "provide sufficient funding...", "maintain expertise," "develop a methodology for matching...resources with...needs," "recruit new personnel," and "provide...training...in S&T." These strategies are too generic to provide adequate guidance to the Division in developing its S&T program. Similarly, the discussion of competencies in Appendix A is mostly a summary description of each group's recent or current activities that involve S&T. To be useful as a strategic planning document, this section should present a critical assessment of each group's current and future S&T capability. *In summary, the draft plan is too generic in its statement of goals and strategies, and it is too descriptive and uncritical in its analysis of competencies, needs, and potential priorities.*

This assessment of the draft plan should not be taken as a criticism

of the Division or the process because the document was presented as a work in progress and because progress has been made. *Because the draft plan was developed by a contractor, the next step is for the Division leadership to obtain more input from the Division groups and staff. This step is critical so that the plan can become more focused and specific to achieving the Division's S&T mission.*

Finally, the DRC members identified some issues that need to be addressed in the plan so that it will provide clear guidance about how S&T will be implemented. As noted above, the plan should present criteria and a process by which management will be able to distinguish between "pure" S&T, S&T directly related to operations support, and non-S&T operations support. The plan should define these boundaries and then state the extent to which the Division plans to engage in "pure" S&T. Will groups and individual staff be required, encouraged, allowed, discouraged, or disallowed to engage in "pure" S&T? A related issue is how these categories of activities will be funded - most importantly, use of direct versus indirect funds for these activities. Also to what extent will the Division encourage staff to seek extramural funding for S&T activities?

Another issue to be addressed is whether participation in S&T will be an expectation of the groups or whether it will just be generally encouraged in the Division. It is difficult to envision the Division maintaining "first-in-class" status if there is not some expectation for S&T beyond pure operations support. Thus, some DRC members raised the concept of whether the Division should provide staff salary incentives for S&T, just like we have asked the Laboratory to create ES&H salary incentives for line personnel in other divisions.

Finally, the DRC recommends that the strategic plan identify specific priorities for future S&T development. Currently, the Division generally encourages S&T activity through the use of the Division seminar and limited funds. The amount and quality of S&T activity is uneven across the groups. *The activity level depends largely on group or individual initiative and less on systematic planning and allocation of resources.* The current situation reinforces the need for a strategic plan so that the Division can determine its priorities and resource allocation for S&T.

STRATEGIC ALIGNMENT

Los Alamos National Laboratory has made excellent progress on implementing its ES&H programs. Integrated Safety Management has begun to take hold and is beginning to show results. However, in order for this and other program efforts to be effective they must be implemented from the top all the way down to the bottom of the organization. They must be a part of the fabric of the culture. Employees working at the bench level need to know and understand management's commitment to these programs and their own roles and responsibilities in these programs.

One important factor in making this happen is having clear goals and measures. For example, the "6 zeros" really need to have a measure that both employees and management can use to track the progress of each "zero" separately.

In addition, these goals and measures need to have a clear connection to the overall LANL strategic plan and in turn the ESH strategic plan. With so many requirements, including DOE, OSHA, New Mexico, University of California, LANL ES&H rules, etc., there is a need for clear alignment among and between all of these measures, so that employees understand what is expected of them.

Employees need to have one set of marching orders which clearly takes them in the right direction to fulfill all of these requirements.

INTEGRATED SAFETY MANAGEMENT

The DRC believes that the LANL transformation has been remarkable: ISM and the 'Standards Based Approach' are clearly now part of the way that LANL does its business. The maturity of the program is demonstrated by the presentations which showed the successes and problems. Laboratory leadership has set the expectations for successful implementation and line organizations have picked up the responsibility for making it happen in their areas. Off-Ramp considerations are clearly focusing on the short-term resolutions required over the next six months, but this should provide an even firmer base for the longer term schedule of work.

There was good evidence of the transition to 'line ownership' with their suggestions for change and improvement being debated and fed upwards from the workplace. Similarly the DOE and UC interactions through the CCB demonstrated "buy-in" of the principles and the effectiveness of the "no surprises" partnership approach. Indeed, this is a very significant advance from the position of just three years ago. While the vertical messages received by Division and Laboratory Management are encouraging and in line with expectation, the DRC feels that confidence would be enhanced through independent feedback, checks and balances. *Our long-standing recommendations for an integrated Audit & Assessment function to highlight achievements and areas for improvement could provide such assurance to the Line, the Lab, DOE and eventually perhaps to other external stakeholders on matters concerning operations effectiveness.*

APPENDIX F

The DRC was provided an update on the Institutional ES&H Performance Measures (i.e., Appendix F) and evaluation process. The DRC did not review evaluation data so no comments can be provided on the Laboratory's performance. Based on the material presented, it appears that good communication regarding performance measures has been established between the Laboratory, UC, and the DOE. This communication is essential in revising the Appendix F measures so that they do function as meaningful indicators of Laboratory ES&H performance. *The DRC also endorses the continuing effort to reduce the number of performance metrics with greater focus on the key corporate indicators of ES&H performance.*

Other than noting progress in the evolution of the Appendix F measures, the DRC had no significant comments about the process. Some minor concerns were expressed by Committee members. One concern is that the evaluation of the process measure (implementation of ISM) is itself described primarily as a process, involving a gap analysis and use of a convened group. The evaluation criteria are expressed only as a percent of the ISM milestones that are met by target dates. There is no explanation, for example, about which milestones are most important or

whether milestones are weighted differently. The Committee has some concern that it may be difficult to score this process metric without having more explicit criteria.

Another concern about the lack of explicit criteria for the process metric is that it could impact on the "Off-Ramp" contract provision decision this fall. The reason is that this metric is given substantial weight (30%) in evaluating overall ES&H performance. Thus, disagreement among the Laboratory, UC, and DOE in interpreting progress on this metric could influence the "Off-Ramp" decision. Even within the Laboratory, there appeared to be some disagreement about progress in implementing ISM. The presentation on ISM indicated that very good progress was being made on ISM implementation. However, the tentative year-to-date self-assessment rating for the FY99 ISM metric given during the Appendix F presentation was "M/G". It seems that this apparent inconsistency would not occur if there were clear and explicit evaluation criteria. Some concern was expressed by Committee members that a marginal self-assessment rating on this metric would not bode well for the Laboratory in negotiating the "Off-Ramp" contract provision.

While the Committee endorsed the trend to reduce and focus the performance metrics for the Appendix F process, some Committee members were concerned that there could be less tracking and reporting of ES&H performance measures that may be of interest to stakeholders not involved in the UC/DOE contract issues. *Because Appendix F defines only the minimum contractual requirements for ES&H performance evaluation, the Laboratory should determine for itself which ES&H performance metrics are relevant and of interest to Laboratory stakeholders. The Laboratory should then monitor and report progress on these measures whether or not they are part of the Appendix F process.* The Appendix F contract provisions should not be the primary driver in ES&H performance evaluation. It is appropriate to maintain a distinction between the Laboratory's ES&H (internally driven) evaluation process and the Appendix F evaluation process (externally driven).

Another minor concern expressed by the Committee was the tendency to evaluate and report on the annual trend in the Appendix F performance scores even though the process has been revised during each of the past few years. The DRC notes that it is not appropriate to consider trends in the scores from year to year when the basis for scoring is substantially different each year. *If there is a need to evaluate trends, this evaluation should be based only on metrics that have been measured and reported consistently during the evaluation period.*

ENVIRONMENTAL ISSUES

Laboratory Level Oversight

The Committee has long suggested that coordination of environmental activities at the Laboratory level be undertaken with appointment of the senior level person to identify opportunities and issues. It is gratifying that a start has been made by the Laboratory with the appointment of Dr. Tom Gunderson as a special staff assistant reporting to the senior level manager, Dr. Richard Burrick. It is further gratifying to have the commitment of Dr. Burrick that he will transmit recommendations to the Director of LANL to accomplish the mission

relative to ES&H for the Laboratory. Additionally, the Laboratory has appointed an Environmental Working Group and an Operational Working Group to assist with recommendations for environmental priorities and to assist with implementation of programs for environmental needs.

While the driving force for the environmental groups of ESH Division remains primarily that of regulatory compliance, it is commendable that many of these groups are looking beyond compliance to operational excellence. Many of the problems of the past are being addressed, although we still have some concerns that are noted at the end of this section.

Assurance Of Regulatory Compliance

Almost all the groups related to environmental issues (ESH-17, 18, 19, 20, plus SWEIS) are addressing S&T related to current assurance of regulatory compliance. This is especially true of the Solid and Hazardous Waste Group, the Regulatory Compliance Group and the activities related to RCRA mitigation inspection and check off.

Beyond Compliance

The culture is definitely moving towards looking beyond compliance to operational/public relations excellence. This is evidenced by the SWEIS Yearbook, the Storm Water Plan, the Watershed Management Plan, the Public Health Program for Emissions and Risks, the Legacy Material Work Off Project and the Wildfire Project. All of these will assist the Laboratory with reducing future regulatory related liabilities and with better relationships with stakeholder groups.

Many problems we have seen in the past are now being addressed. The SWEIS Mitigation Plan, which will include bio-monitoring of flora and fauna is an excellent example. Other examples are the Water Quality & Hydrology/Groundwater Plan and the Threatened and Endangered Species Habitat Management Plan. Effort in these areas has been needed to eliminate problems related to RCRA regulations and public concerns. Collaboration with New Mexico Environmental Department (NMED), as well as with other parts of LANL, has improved to a significant extent.

Concerns

There are still some concerns that the Committee would like Division and Laboratory management to examine and possibly take mitigating steps. *First, although there is an excellent material tracking system started, there needs to be a complete "cradle to grave" tracking system for materials throughout the laboratory. This must include all materials purchased, not just those obtained through the business office. Secondly, the Wildfire Project, while an excellent project, needs to be accelerated. The hazards and risks are too great to wait three years for full implementation. Finally, even though there is a culture now for looking beyond compliance to operational excellence, this needs to be continually reinforced so that all groups have this "mind set."*

SWEIS Yearbook

The SWEIS Yearbook is an excellent example of cultural thinking beyond compliance. It is an initiative that the DRC had recommended earlier and has been undertaken, even though this is not a requirement by any regulation. It will be an excellent means of reporting actual versus projection accomplishments to DOE and to the public. It will give the

public confidence in progress on the EIS and will help with NEPA compliance. Further, it will be an excellent measurement and controlling document for the management of the division and the laboratory. The inclusion of effluents, emissions and wastes as well as progress on mitigation measures will be very useful to the Laboratory as well as to DOE and the public. Further confidence will be provided to the outside stakeholders because of the discussions on ecological effects, cultural effects, water quality and environmental restoration. This Yearbook already has support of the Department of Energy.

Compliance Initiatives

The Laboratory is to be commended for acting on the DRC recommendation that there be lab wide responsibility for ES&H. We see this as another step in the cultural changes which have been underway. The initiatives that have already been started under the leadership of Dr. Gunderson and the Environmental Working Group are excellent. We especially like the Legacy Materials Work-Off Project that has already addressed over 22,000 orphaned materials and removed these from the hazard list. This alone has reduced the RCRA liability considerably. As a follow-up, the inventory tracking system for hazardous materials will make sure that legacy materials do not accumulate, but will be the responsibility of each of the operating divisions.

The Environmental Working Group has identified priorities, which we understand include the following:

- Placing environment as a key item in the Integrated Safety Management system
- Communicating effectively with NMED and EPA
- Establishing environmental management systems

We further understand that this top-level management attention has resulted in a RCRA mitigation inspection and check off project, which we are sure will benefit the laboratory considerably.

In summary, all the actions are in the right direction but it will need continual attention on the part ESH and Laboratory leadership to make certain that these cultural changes progress.

STAKEHOLDER PERCEPTIONS

The Laboratory has continued to improve its outreach to surrounding communities with research directed to answer community questions and concerns, publications oriented to the general community reader, and additional public meetings. ESH has played a central role in this outreach, collaborating with pueblo and community environmental monitoring, cooperating with the CCNS settlement agreement, and making increased efforts to avoid regulatory noncompliance.

In this process ESH has not suppressed findings of low-level contamination in soil, water, stream bed sediments, plants and wildlife related to LANL activities. Rather ESH has acknowledged the low-level contamination and reassured the public by referring to EPA and other standards for health protection and calculating projections based on measurement as well as modeling.

With a more sensitive monitoring system in place and more information available via the world-wide web, ESH may need to deal with emergent emissions spikes, if and when they do occur.